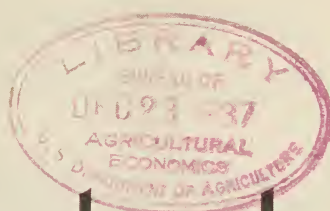


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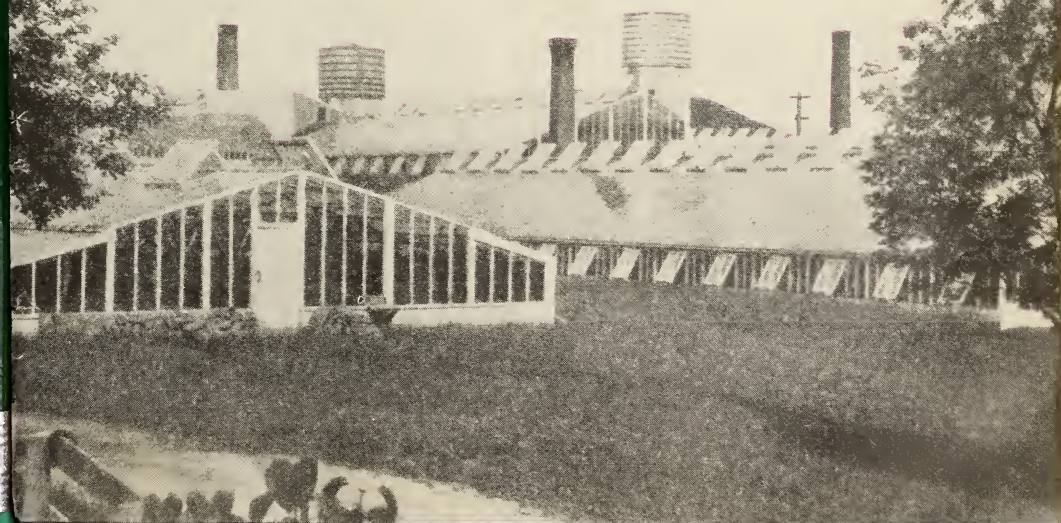
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# Rhubarb Forcing

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# RHUBARB FORCING

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The forcing of rhubarb is restricted to regions capable of producing supplies of strong, field-grown roots. It is essential that severe freezing occur during the winter, especially in the early part of the season, as the roots require freezing before forcing begins. The plant does best in regions having relatively cool summer weather; it is not adapted to culture over a large portion of the lower South.

Two distinct types of rhubarb forcing are practiced: (1) Growing the rhubarb in the dark, in cellars, basements, mushroom houses, and specially constructed forcing houses, where practically all light is excluded, which yields a product having a pale or pinkish leaf stem, with very little development of foliage. The foliage of this type of forced rhubarb has very little color, and no appreciable amount of plant food is taken from the air and soil. (2) Growing the rhubarb in greenhouses under full light, which produces a naturally colored plant with a medium-sized green leaf. These leaves enable the plant to assimilate food, thereby greatly extending the season during which rhubarb can be harvested from one set of roots. Greenhouse-grown rhubarb produced in the light is more like outdoor rhubarb than is the product grown in the dark.

As heretofore indicated, the first requirement in the forcing of rhubarb is a supply of strong, well-grown roots. These are usually propagated by dividing old plants into crowns containing one or more buds and in some cases by the use of seedlings. Rhubarb seedlings are extremely variable, whereas those produced by division of roots remain true to the type of the parent plant. For this and other reasons practically all rhubarb is propagated by division. As a rule, rhubarb for forcing is grown for that specific purpose; little if any rhubarb is harvested from the plants intended for forcing.

Land for the growing of crowns for forcing should be of high fertility and well supplied with plant food in the form of manure supplemented by commercial fertilizers. From 20 to 25 tons per acre of good-grade manure and 1,500 to 2,000 pounds per acre of a fertilizer containing 4 to 5 percent of nitrogen, 8 to 10 percent of phosphoric acid, and 4 to 5 percent of potash might well be mixed into the soil before the crowns are planted. In character, the soil should be of a loamy to clayey nature, as land of this texture will adhere to the roots when they are dug and hauled to the forcing house. The stock for forcing is planted during early spring in rows 5 to 6 feet apart, with the plants from 2 to 3 feet apart in the rows. Sufficient cultivation to control weeds and a liberal use of both manure and fertilizer as a top dressing constitute desirable practices during the two seasons required for the production of strong forcing roots. Seedstalks should be carefully removed as soon as they begin to develop and no seed allowed to form.



At the end of the second summer the roots should be ready for shifting to the forcing house. In sections where they are allowed to freeze before being placed in the forcing structures, they are plowed out and left in the field until freezing occurs. In sections such as the Concord district of Massachusetts, where they are frozen after being placed in the forcing house, they are removed to the house before severe freezing weather. In no case should plowing out be performed until the tops are killed down by frost.

Rhubarb forcing is prominently developed in the Concord district of Massachusetts, in the Macomb County district of Michigan, and in a number of other sections of the country. The Macomb County district is said to produce a large percentage of the forced rhubarb supply of this country. Because the practices in the two districts vary widely, they will be discussed separately.

## Concord District of Massachusetts

### Forcing Houses

Lean-to greenhouses 20 to 25 feet in width built along the north side of forcing houses employed for growing cucumbers, tomatoes, lettuce, and other crops are generally used for rhubarb forcing. The lower 6 feet of the roof space is constructed of a framework to which ordinary 3- by 6-foot hotbed sash are fitted and fastened with hooks. The remainder of the roof is made of permanent rafters with large ventilators next to the vegetable house. The houses are provided with coils of steam pipe placed along both walls and across the ends. These pipes are so graded that they can be completely drained when not in use. The lean-to is fitted with one or two lines of irrigation pipe of the overhead-sprinkler type and is also arranged for complete drainage. The rhubarb is grown on ground beds, with narrow walks, which are usually spaced so that one can reach the middle of each bed in harvesting and tending the crop.

### Method of Forcing

During the fall, before severe weather occurs, roots are dug or plowed out of the soil and very carefully transplanted to the forcing house with as much soil as possible adhering to them. They are set in the beds practically touching one another, and the spaces between them are completely filled with soil. The roots from 2 acres are required to fill a house 20 to 25 feet wide and 350 to 400 feet long. The beds are given a thorough watering, to settle the soil around the crowns. Ventilators are opened wide, water and steam pipes drained, and the house left open until both the roots and the soil around them are completely frozen. The ventilators are then closed, the sash are put on, and the house is allowed to warm up gradually, some heat being applied, but not too much at first. The temperature of the house is carried slightly above freezing at night and allowed to rise during the day to that produced by the sun's heat; however, ventilation must be provided.

When the stalks begin to appear the soil is kept moderately moist, and soon a crop of very tender but well-colored rhubarb with small but normal leaves is produced. This is packed in bunches and marketed for the most part in Boston for distribution. Rhubarb forced in this

manner will produce during practically the entire winter, whereas that forced in the dark is exhausted after a few weeks. After being forced, the rhubarb roots are considered practically worthless and are thrown away. Therefore, a grower must have not only sufficient outdoor plantings to supply him with planting stock each spring but a 1-year-old and a 2-year-old field of sufficient size to supply the roots to fill his houses. The Concord method is so radically different from the cellar or special-house method that it is well worth consideration by persons who contemplate the forcing of rhubarb for marketing.

Forcing under greenhouse benches is very similar to the Concord method, except that the crowns must be frozen solid before they are brought into the house. The Concord method is adapted to use over a wide range of territory in the regions where rhubarb can be grown and where the weather becomes sufficiently cold to freeze the roots in the houses during the early part of the winter. Material allowed to freeze in the field after being plowed out could usually be forced much farther south.

### Macomb County District of Michigan

In Macomb County, Mich., varieties known as Victoria and Strawberry are employed for forcing. The 2-year-old stock is plowed out during early November by the use of a plow which turns a wide, deep furrow, in order that the roots may be left with large balls of earth adhering to them. Soil used in this district is of a heavy texture, which favors the adherence of large masses of it around each clump. The plants are allowed to lie undisturbed until about December 1 to 10, or until sufficiently frozen to permit them to be moved without the soil dropping off, when they are taken into the house.

#### Forcing Houses

Houses 28 feet wide and 100 to 120 feet long are commonly used in the Macomb County district, although other sizes are also employed. These houses are usually of wood, having side walls about 3 to 3½ feet high, with a ridge 2 to 3 feet higher through the middle. A row of purlin posts with scantling purlins is placed on either side of the ridge about halfway between the ridge and the side walls. The end walls are removable, so that a team can be driven through the house between the lines of posts when bringing in or taking out the roots. In most cases the houses are not sufficiently high to permit driving a team through without removing the roof boards. These boards, which are usually 14 feet long, rest on the side walls and ridge pole and are covered with straw, manure, corn fodder, sod, or other material for the purpose of excluding light and conserving heat. Ordinarily these boards are not placed in position until the house is filled. A house of this size is provided with two or three stoves capable of maintaining a temperature of about 60° F. during the extremely cold weather which often occurs in that section.

#### Methods of Forcing

The roots are packed closely together on the ground in the house, leaving aisles at suitable distances to facilitate the work of harvesting. If the roots have plenty of soil attached to them, no additional earth is used, but filling spaces between the clumps conserves moisture and

gives better results. About 4,000 clumps are required to fill a 28- by 120-foot house. This would require the roots grown on about an acre of good ground. The roof is placed in position, the ends boarded up, and the temperature gradually raised, but not to exceed 60° F. It is especially necessary that the temperature be kept within those limits during the early part of the forcing period, as high temperature at that time will cause the entire crop to be white in color; in fact, higher temperatures at any stage of the forcing period may give white rhubarb. As a rule, two sets of roots are forced in each house during the winter season.

Harvesting begins about January 8 to 10, or a month after the roots are placed in the house. The length of the harvesting season and yields depend to some degree on the size and vigor of the roots and the methods employed in managing the crop. In this district rhubarb is packed in cardboard boxes holding 5 pounds each. Ten of these boxes are packed in a crate. Shipment is made to many parts of the country, including the East, much of the Macomb County rhubarb appearing on the Washington, D. C., markets. Growers who give close attention to the work seem to obtain satisfactory returns. The industry is of some importance in Macomb County. During the producing season about \$3,500 worth of rhubarb is shipped each week from Royal Oak, in Oakland County, alone.

### Rhubarb Forcing in Other Localities

Rhubarb is also being forced in large quantities in the Walla Walla district of the State of Washington. In view of the fact that rhubarb grows especially well in the Pacific Northwest there is reason to believe that the winter forcing of this crop will assume large commercial importance in that section of the United States.

Rhubarb is forced in many localities in cellars, basements, caves, pits, mushroom houses, under greenhouse benches, and in specially built houses by practically the same methods as those followed in the Macomb County district. The forcing of rhubarb, while attractive as a winter occupation for gardeners, involves a large amount of labor and a long-time investment in the growing of the roots. Present market requirements are fairly well met; however, there is little difficulty in finding a market for high-grade forced rhubarb. The industry has one advantage in that it brings a cash return to gardeners during the winter, when it is most needed.

Small quantities of rhubarb may be forced for home use by lifting a few hills from the garden and allowing the roots to freeze thoroughly. Plenty of soil should be left on the roots, and while still frozen the clumps may be removed to an ordinary cellar where a temperature of 50° to 60° F. can be maintained. If desirable the roots may be packed in boxes of soil before freezing and may remain in the boxes during the forcing period. The soil around the roots should be kept reasonably moist but not extremely wet during the forcing period.





